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MRID No. 444577-30

DATA EVALUATION RECORD
§ 72-1 - ACUTE LC_{50} TEST WITH A COLDWATER FISH

1. **CHEMICAL:** Prohexadione Calcium — PC Code No.: 112600

2. **TEST MATERIAL:** BX-112 — Purity: 93.3%

3. **CITATION:**

Authors:	M.T. Douglas, G. Bell, and I.A. Macdonald
Title:	The Acute Toxicity of BX-112 to Rainbow Trout (*Salmo gairdneri*)
Study Completion Date:	February 3, 1997
Laboratory:	Huntingdon Research Centre Ltd., Cambridgeshire, England
Sponsor:	BASF Corporation, Research Triangle Park, NC
Laboratory Report ID:	KCI 37(d)/90840
MRID No.:	444577-30
DP Barcode:	D245631

4. **REVIEWED BY:** Karl Bullock, M.S., Environmental Scientist, Golder Associates Inc.

Signature: Karl Bullock **Date:** 7/7/98

APPROVED BY: Pim Kosalwat, Ph.D., Senior Scientist, Golder Associates Inc.

Signature: P. Kosalwat **Date:** 7/7/98

5. **APPROVED BY:**

Signature: [illegible] Montague **Date:** 11/7/98

6. **STUDY PARAMETERS:**

Age or Size of Test Organism:	Mean: 3.93 g
Definitive Test Duration:	96 hours
Study Method:	Static renewal
Type of Concentrations:	Mean measured

7. **CONCLUSIONS:** This study is scientifically and ~~fulfills the~~ Cannot fulfill Bgn 6/2000 guideline requirements for an acute (core level) toxicity test using the rainbow trout. The LC_{50} was >100 ppm nominal or >94.6 ppm ai mean measured concentration, which classifies BX-112 as practically non-toxic to the rainbow trout. The NOEC was 94.6 ppm ai. meet Agency

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Signature: R. Hanson **Date:** 11/7/98

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Results Synopsis

LC_{50}: >94.6 ppm ai 95% C.I.: N/A

NOEC: 94.6 ppm ai Probit Slope: N/A

8. **ADEQUACY OF THE STUDY:**

A. Classification: ~~Core.~~ Supplemental BJM 6/14/200

B. Rationale: Meets guideline requirements.

C. Repairability: N/A

9. **GUIDELINE DEVIATIONS:**

1. Dilution water was dechlorinated tap water.

2. Hardness (350 mg/L as $CaCO_3$) and pH (8.4-8.5) were higher than recommended (hardness: 40-200 mg/L as $CaCO_3$, pH: 7.2-7.6).

3. The biomass loading rate (0.98 g/L) exceeded guideline requirements (≤0.8 g/L).

4. Temperature was measured daily; guideline protocol requires continuous temperature monitoring.

5. The test concentration was slightly below the required 100 ppm ai.

10. **SUBMISSION PURPOSE:**

11. **MATERIALS AND METHODS:**

A. Test Organisms

Guideline Criteria	Reported Information
Species Preferred species is the rainbow trout (*Oncorhynchus mykiss*)	Rainbow trout (*Salmo gairdneri*)
Mean Weight 0.1-5 g	3.93 ± 0.10 g
Mean Standard Length Longest not > 2x shortest	5.8 ± 0.2 cm

Guideline Criteria	Reported Information
Supplier	Westacre Trout Farm, Norfolk, U.K.
All fish from same source?	Yes
All fish from the same year class?	Yes

B. Source/Acclimation

Guideline Criteria	Reported Information
Acclimation Period Minimum 14 days	37 days
Wild caught organisms were quarantined for 7 days?	N/A
Were there signs of disease or injury?	No
If treated for disease, was there no sign of the disease remaining during the 48 hours prior to testing?	N/A
Feeding No feeding during the study	Last fed >24 hours prior to testing.
Pretest Mortality < 3% mortality 48 hours prior to testing	0% mortality 7 days prior to testing.

C. Test System

Guideline Criteria	Reported Information
Source of dilution water Soft reconstituted water or water from a natural source, not dechlorinated tap water	Dechlorinated tap water.
Does water support test animals without observable signs of stress?	Yes
Water Temperature 12°C	13°C

Guideline Criteria	Reported Information
pH Prefer 7.2 to 7.6	8.4-8.5
Dissolved Oxygen Static: ≥ 60% during 1st 48 hrs and ≥ 40% during 2nd 48 hrs, flow-through: ≥ 60%	≥80% during the test
Total Hardness Prefer 40 to 200 mg/L as $CaCO_3$	350 mg/L as $CaCO_3$
Test Aquaria 1. Material: Glass or stainless steel 2. Size: Volume of 18.9 L (5 gal) or 30 x 60 x 30 cm 3. Fill volume: 15-30 L of solution	 Glass Not reported 40 L
Type of Dilution System Must provide reproducible supply of toxicant	N/A
Flow Rate Consistent flow rate of 5-10 vol/24 hours, meter systems calibrated before study and checked twice daily during test period	Solutions were renewed daily.
Biomass Loading Rate Static: ≤ 0.8 g/L at ≤ 17°C, ≤ 0.5 g/L at > 17°C; flow-through: ≤ 1 g/L/day	0.98 g/L
Photoperiod 16 hours light, 8 hours dark	16 h light, 8 h dark
Solvents Not to exceed 0.5 mL/L for static tests or 0.1 mL/L for flow-through tests	Solvent: none Maximum conc.: N/A

D. Test Design

Guideline Criteria	Reported Information
Range Finding Test If LC_{50} >100 mg/L with 30 fish, then no definitive test is required.	The study was a limit test.
Nominal Concentrations of Definitive Test Control & 5 treatment levels; dosage should be 60% of the next highest concentration; concentrations should be in a geometric series	Negative control, in duplicate, and one treatment concentration of 100 mg/L in triplicate.
Number of Test Organisms Minimum 10/level, may be divided among containers	10 fish/replicate 2 replicates/control (20 fish total) 3 replicates per treatment (30 fish total)
Test organisms randomly or impartially assigned to test vessels?	Yes
Biological observations made every 24 hours?	Yes
Water Parameter Measurements 1. Temperature Measured constantly or, if water baths are used, every 6 hrs, may not vary > 1°C 2. DO and pH Measured at beginning of test and ever 48 h in the high, medium, and low doses and in the control	Temperature, DO, and pH were measured in each test chamber at test initiation and daily thereafter.
Chemical Analysis Needed if solutions were aerated, if chemical was volatile, insoluble, or known to absorb, if precipitate formed, if containers were not steel or glass, or if flow-through system was used	Solutions were collected from each test chamber at 0, 24, and 96 hours and analyzed by HPLC.

12. REPORTED RESULTS:

A. General Results

Guideline Criteria	Reported Information
Quality assurance and GLP compliance statements were included in the report?	Yes
Recovery of Chemical	92 - 107% of nominal.
Control Mortality Not more than 10% control organisms may die or show abnormal behavior.	0% mortality in the negative control.
Raw data included?	Yes
Signs of toxicity (if any) were described?	No signs of test material toxicity were observed.

Mortality

Concentration (mg ai/L)		Number of Fish	Cumulative Number Dead			
Nominal	Mean Measured		Hour of Study			
			24	48	72	96
Negative Control	<0.25	20	0	0	0	0
93.3	94.6	30	0	0	0	0

Other Significant Results: No sublethal signs of test material toxicity were observed.

B. Statistical Results

Statistical method: Visual observation

LC_{50}: >100 mg/L 95% C.I.: N/A

Probit Slope: N/A NOEC: 100 mg/L

13. VERIFICATION OF STATISTICAL RESULTS:

Parameter	Result
Binomial Test LC_{50} (95% C.I.)	N/A
Moving Average Angle LC_{50} (95% C.I.)	N/A
Probit LC_{50} (95% C.I.)	N/A
Probit Slope	N/A
NOEC	94.6 ppm ai

14. REVIEWER'S COMMENTS: This study is scientifically sound and fufills the guideline requirements for an acute toxicity test using the rainbow trout. Although the test material was not tested up to 100 ppm ai, the reviewer does not believe that increasing the test concentration by 5.4 ppm ai would have changed the outcome of the study. The LC_{50} for rainbow trout exposed to BX-112 was >100 ppm nominal (>94.6 ppm ai mean measured concentration), the only concentration tested. This product is classified as practically non-toxic to the rainbow trout. The NOEC was determined to be 94.6 ppm ai. This study is classified as **Core.**